

## Effect Of Regular Walking During Pregnancy And Its Influence In Labour Outcome

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### KEYWORDS

Walking, pregnancy, vaginal delivery, cesarean , stages of labour.

### ABSTRACT

Walking is one of the simplest form of exercise. The ongoing analysis has been carried out to ascertain the consequence of walking during maternity on labor end result. Walking is the most suitable for pregnant women regardless of their fitness level. It can also help them to relieve from back pain and to enhance the muscle tone and endurance. This research was carried out using an initial empirical design over a period of 3 months in the Department of Obstetrics and Gynaecology at Sree Balaji Medical College, Chennai. A sample of 100 antenatal women at 36 weeks of gestation were randomly selected by excluding the antenatal women who come under high risk pregnancies. Data collection was done based on pre designed questionnaire given to all antenatal women who were undergone regular walking for 30 mins, 5 days in a week as the control club and the walking club. Major distinctions were found using statistical techniques. In walking group and control group in terms of vaginal delivery and cesarean section. The study emphasizes that walking plays an important role in pregnancy and reduces the cesarean rates.

### INTRODUCTION:

Health across the country can only be enhanced through regular exercise (7). The main health issue, which also impacts women of reproductive age, is obesity and sedentary lifestyles (3). Many women are forcefully encouraged to alter their lifestyles throughout maternity. Along with the right knowledge and guidance from medical specialists, this goal will assist them in developing habits seem to improve one's own body wellness and the outcome of their labor.

Walking not only influences in labour outcomes but also provides numerous benefits such as stress reduction, maintains and appropriate weight gain during pregnancy, improved circulation and strengthens the pelvic muscles.(3) Studies shown that Pregnancy-related exercise has additional advantages, including a minimal risk of gestational diabetes mellitus, cesarean delivery, vaginal birth, and postpartum recuperation. (4). Maternal ladies with no complications or contraindications for exercises, are encouraged to initiate walking or safe physical activities(4).

Suggestions supported by evidence that exercising during pregnancy has undeniable positive impacts and that these advantages greatly exceed the hazards (4). Regarding whether or how to modify their workout routine throughout childbirth and following delivery, expectant mothers can speak with their obstetrician-gynecologist or another maternal health provider (4). Workout when pregnant has several advantages, such as increasing the likelihood of labor via the vagina and reducing the risk of gaining too much weight, gestational diabetes mellitus, gestational hypertensive disorders, premature deliveries, and cesarean section. (4).

Additionally, regular exercise can play a crucial role in preventing women's depression in the prenatal and postpartum periods.(4) Pregnant women of normal weight with a singular smooth gestation demonstrated that exercising aerobically for 35 to 90 mins, three to four times a week, is not linked to a lower mean gestational age at delivery or a higher risk of premature birth. Workout was linked to a greatly decreased risk for hypertensive diseases and GDM, as well as a considerably greater rate of natural delivery and a much lower rate of cesarean birth. (4).

**AIM:**

The study's goal is to ascertain how regular walking throughout maternity affects the course of labor.

**OBJECTIVES:**

- To study the effect of regular walking in Antenatal period on onset of labour.
- To study the effect of regular walking in Antenatal period on duration of each stage of labour.
- To study the effect of regular walking in Antenatal period on mode of delivery.

**INCLUSION CRITERIA:**

All low risk women with single term pregnancy who has come to SBMCH at 36 weeks.

**EXCLUSION CRITERIA:**

Antenatal women with high risk pregnancies include-  
Heart disease,  
severe anaemia,  
bronchial asthma ,  
previous caesarean pregnancy,  
multiple pregnancy,  
placenta previa and  
polyhydramnios.

**METHODOLOGY:**

**STUDY DESIGN:**

Prospective observational study

**STUDY PLACE-** The study will be carried out in the Department of Obstetrics and Gynaecology of Sree Balaji Medical College and Hospital, Chennai, India.

**DURATION OF THE Analysis:**

3 months - October 2024 to December 2024

**BUDGET & DETAILS OF FUNDING AGENCY IF ANY:** Self funding

**SAMPLE SIZE CALCULATION :**

$$N=2SD^2 (z_{1-\alpha/2}+Z\beta)$$

$$N=\frac{2D^2}{202} (1.96+0.84)^2$$

$$N=98$$

Round off n=100

Where N= required sample size, SD= standard deviation, D= desired margin of error

**MATERIALS AND METHODS:**

The upcoming qualitative research will be carried out at the Department of Obstetrics and Gynaecology, Sree Balaji Medical College and Hospital between October 2024 and December 2024. Pregnant women at 36weeks who is visiting the Department of Obstetrics ad Gynaecology OPD fulfilling the inclusion and exclusion criteria will be selected as participants of study.

Upon meeting the criteria, participants will be provided with detailed information about this study and its objectives. Those who say yes to involve will be instructed to submit written approval, acknowledging their understanding of the protocols and their freedom to discontinue at any moment. Once the consent is obtained from the participants, then they will complete the pre designed questionnaire about walking duration, how many days and what weeks, they were started. Then 100 participants were divided into two groups : Study group undergone walking for 30-40mins for 5days in a week. And Control group were not undergone regular

walking. Both group of women underwent standard awareness. Onset of labour, duration of each stage of labour and mode of labour were recorded.

**Analysis and Follow Up:** After data collection, Both groups were followed till delivery.

Data collected were entered and analyzed in SPSS Version 26. Variables were analyzed as number of onset of spontaneous of labour and duration of labour.

**Institutional ethical committee clearance** - Obtained

## REVIEW OF LITERATURE:

Walking during pregnancy offers an essential part in labour outcomes & also various aspects during pregnancy and post partum period. The following are the findings of various literature , studies, journals regarding walking and exercise during pregnancy and its results.

In Raquel Rodriguez- Blanque et al (1) study on pregnancy-related exercising and how it affects time of delivery. This study was carried out as a 5 month controlled clinical study including 140 good pregnant women. They were separated into a couple of categories: the control club and the exercise club. The SWEP (Study of Water Exercise during Pregnancy) therapy program, which started at 20 weeks conception and completed at 37 weeks, revealed that 120 ladies were ultimately tracked, 60 in each gang. Eutocic births occurred in 56% of CG women and 63% of EG women at term. The ladies in EG and CG had average pain durations of  $389.33 \pm 216.18$  and  $561.30 \pm 199.94$  minutes, respectively. This is a 3 hrs variation. ( $p < 0.001$ )(1).

In Aguilar Cordero MJ, Rodríguez Blanquet R, Sánchez García JC et al (5) study on to know if A moderate-intensity exercise program using the Water Study Exercise Pregnant (SWEP) method, carried out in an underwater setting, helps to improve the perinatal period for each mother and the unborn child. 364 pregnant women in Spain participated in this investigation, which was conducted using a randomized clinical experiment approach. They separated into two gang: the control gang and the intervention gang Based on 20 to 37 weeks of development (SG), participants in the fitness program created especially for the research, known as SWEP, complete three weekly sessions lasting 60 minutes overall. Three phases will be included in each session: a warm-up, the primary exercise period that is split into a respiratory, energy & persistence workout section, a final expanding & resting phase. The factors such as maternal weight, blood pressure, energy throughout exercising, baby weight m apar scores, stretching period, ejection, and a stitches, and so many other variables were also evaluated by this study.

Fitness and movement throughout pregnancy and after delivery phase are recommended by the American College of Obstetricians and Gynecologists (ACOG). No. 650, Committee Opinion. Gynecology and Obstetrics. (4) 2015 because it has been updated to take into account new research on the advantages and disadvantages of workout and fitness throughout maternity and after delivery phase. Particularly, obese women should be urged to adopt an active routine across pregnancy, such as exercise and sensible eating habits. 5. Women must begin with brief, gentle exercises and slowly increase the duration or level of action . Latest research on the consequences of sport on obese pregnant women found that those who exercised experienced slight decrease in pounds

In a 2017 assigned controlled trial, Wang C, Wei Y, Zhang X, et al. (6) claimed cycling in the 1<sup>st</sup> trimester and carried out a minimum of 30 minutes, three times a week until 37 weeks of conception, drastically lowered GDM, considerably lowered maternal muscle mass at >25 weeks of development, & reduced newborn infant mass. The research group included 300 bulky or fatty women with basic, one-time gestations at a total of thirteen weeks of gestation. Additionally, it demonstrated that there were no appreciable variations in the prevalence of other adverse effects amongst the exercise and control teams, including preterm birth, hypertension during pregnancy, C-Sec, and macrosomia, all of which are common among workout gang (6).

In their study, "Consistent Activity During Maternity Has a Connection With a Smaller Initial Week of Labor," Perales M. et al. (8) looked at 166 women, all of whom had solitary gestation and no complications. Eighty-three of these were assigned to the control group (CG) and eighty-three to the exercise group (EG). during their gestational years, EG women engaged in an active conditioning regimen consisting of three days a week, 55- to 60-minute bouts. Results showed that considerable changes are seen in the span of the 1<sup>st</sup> level of labor (EG =  $389.6 \pm 347.64$  minutes vs. CG =  $515.72 \pm 353.36$  minutes;  $p = .02$ , Cohen's  $d = .36$ ). The second and third stages did not differ between the study groups. A physical exercise program during pregnancy is associated with a shorter first stage of labor.(8)

A analysis by Barakat R. et al. (9) found that movement while pregnant is linked to a lower labor time. 508 pregnant women in good health participated in this study. The treatment was a three-weekly program of intense

aerobic activity during pregnancy. The Pearson  $\chi^2$  and Mann-Whitney analysed to examine group differences. Early period of Pain (409 vs. 462 minutes,  $p = 0.01$ ), the entire length of maternity (450 vs. 507 minutes,  $p = 0.01$ ), and the entire time of the 1<sup>st</sup> and 2<sup>nd</sup> phases of maternity (442 vs. 499 minutes,  $p = 0.01$ ) were all shorter for women unsystematically given to the exercise gang, according to the findings. In the other club the odds of a woman giving birth at either 250 or 500 mins (median times) are 19.1% and 62.5%, respectively. ( $Z = -2.37$ ,  $p = 0.018$ ).

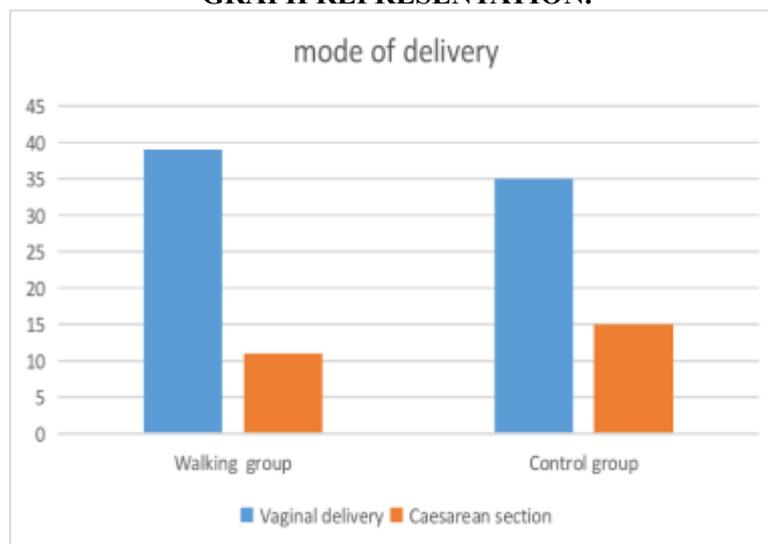
**RESULTS:**

**TABLE 1:OUTCOMES OF PREGNANCY BETWEEN WALKING AND CONTROL GROUP:**

Types of delivery	Walking group	Control group
Vaginal delivery	39	35
Caesarean section	11	15
Chi square	0.8316	
P value	0.3618	

The table 1 , reveals that Among 50 persons in study group, undergone regular walking in that 39 antenatal women resulted in vaginal delivery and 11 antenatal women resulted in cesarean delivery. In control group, 35 women resulted in vaginal delivery, and 15 resulted in cesarean delivery. There were no considerable change in the outcome of delivery among walking and control gang.

**Graph 1:OUTCOMES OF PREGNANCY BETWEEN WALKING AND CONTROL GROUP IN GRAPH REPRESENTATION.**



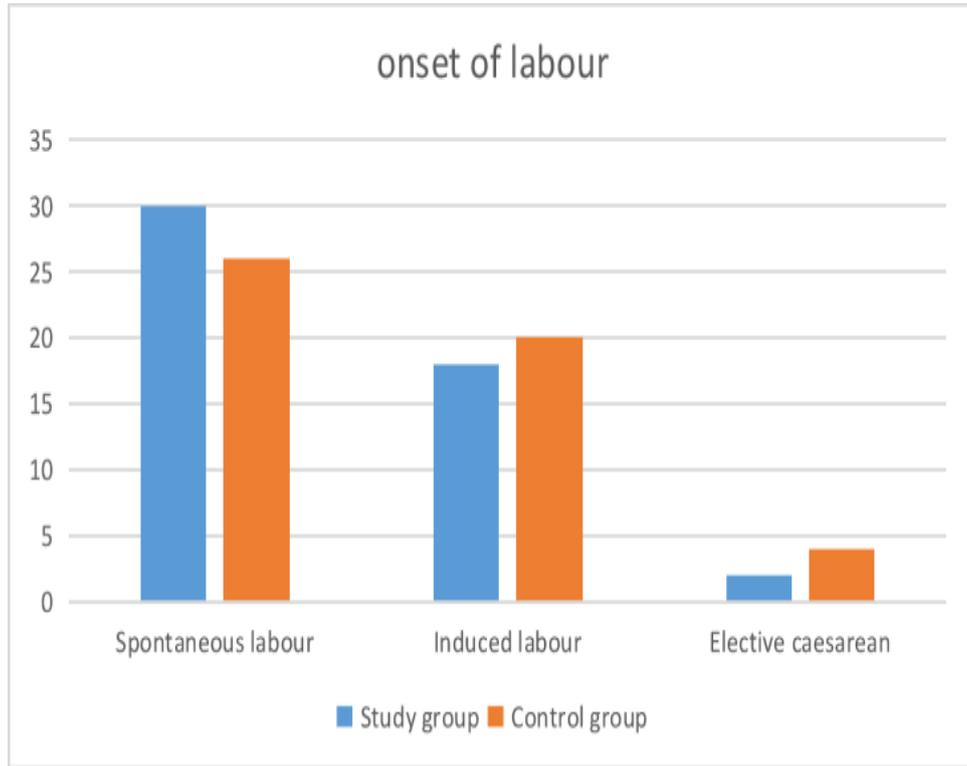
Graph1:The Table 1 which is represented in the form of graphical representation in graph 1 shows that there was zero change in outcomes of delivery amid walking and control gang. But minimal increases in cesarean rates in control group than the study group.

**Table 2: SPONTANEOUS LABOUR OUTCOMES BETWEEN WALKING AND CONTROL GROUP:**

ONSET OF LABOUR	STUDY GROUP	CONTROL GROUP
SPONTANEOUS LABOUR	30	26
INDUCED LABOUR	18	20
Elective LSCS	2	4
Chi square	1.0576	
P value	0.5892	

The table 2, reveals that Among 50 antenatal women in study group, who were undergone regular walking - 30 women results in spontaneous labour, 18 women resulted in induction and 2 women only resulted in elective LSCS. No considerable change in commencement of spontaneous labour among study and control gang, but elective cesarean section was reduced in study group when compared group.

**Graph 2 :SPONTANEOUS LABOUR OUTCOMES BETWEEN WALKING AND CONTROL GROUP:**



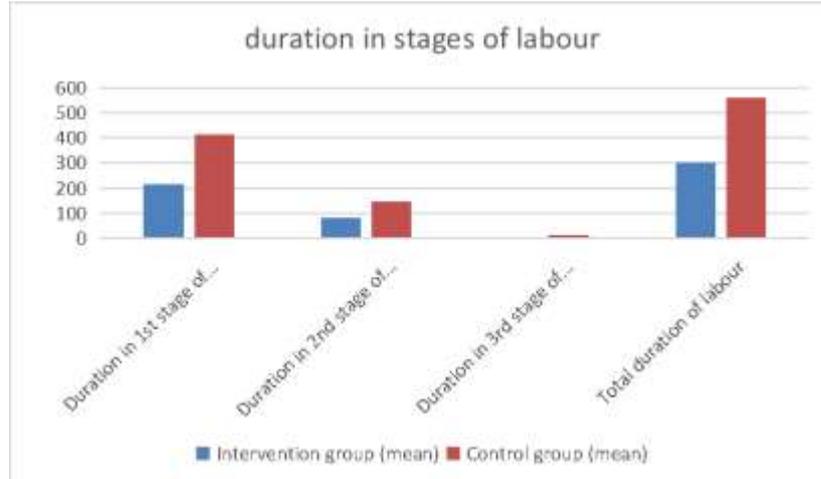
Graph 2 showed the same table 2 in graphical representation that there were no considerable change in beginning of spontaneous labour among study and control gang, but elective cesarean section was reduced in study group when compared group.

**Table 3:PERIOD OF STAGES OF LABOUR IN WALKING AND CONTROL GROUP:**

Duration in stages of labour	Intervention gang (mean)	Control gang (mean)	T value	P value
Duration in 1 <sup>st</sup> stage of labour	215.9	415.45	5.46	0.0001
Duration in 2 <sup>nd</sup> stage of labour	81.3	144.95	2.57	0.01
Duration in 3 <sup>rd</sup> stage of labour	7.45	8.76	7.98	0.0001
Total duration of labour	302.65	562.16	4.38	0.0002

Table 3 reveals that Among 50 antenatal women who undergone regular walking, they had less duration of 1st , [215.9] than control group[415.45] and also less duration of 2nd stage of labour in study group[81.3] when contrast to control gang[144.95]. There were significant difference in duration of 1nd stage and 2nd stage of labour. So Total duration of labour also significantly reduced in study group compared to control group.

**Graph 3:DURATION OF STAGES OF LABOUR IN WALKING AND CONTROL GROUP:**



Graph 3 , shows that table 3 in graph representation that notable changes are seen in span of 1st stage and 2nd period of labour. So overall time period of labour also significantly reduced in study gang contrast to control gang.

There is **statistically significant association (p=0.3618) between vaginal delivery** in walking group (78%) and control group(70%).

**Period of 1<sup>st</sup> stage and second stage of labour significantly reduced (p=0.001) in walking group** compared to control group.

**Cesarean delivery significantly reduced in walking group** than control group.

#### ➤ DISCUSSION:

In the study Barakat R, et al (9) on workout during maternity is linked with a timely period of labor. This analysis done in 508 healthy childbearing ladies. The course of action was a three-weekly program of moderate aerobic activity during labor. The Pearson  $\chi^2$  and Mann-Whitney tests were used to examine variations among gang. Results showed that Women belong to exercise group had less pain (409 vs 462 min,  $p = 0.01$ ), total time lapse of pain (450 vs 507 min,  $p = 0.01$ ) together in of 1st and 2nd stages of labor (442 vs 499 min,  $p = 0.01$ ). The probabilities of a woman being delivered at 250 min and 500 min (median times) were 19.1% and 62.5% in the experimental group vs 13.7% and 50.8% in the control group ( $Z = -2.37$ ,  $p = 0.018$ ).

In our study both period of first and 2<sup>nd</sup> period of maternity had significantly reduced. So that the total duration of labour also decreased.

In the study of Gascoigne EL et al(10) on minor workout and maternity outcomes: an analyst review showed that a meta analysis of 2059 pregnant women of which 1022 done a Spend 35 to 90 minutes doing aerobic exercises. 3–4 minutes each week and 1037 pregnant women of control group who does not do any exercises. Results showed revealed the likelihood of vaginal delivery was higher for those who were randomly assigned to exercise (73.6% vs. 67.5%; RR, 1.09, 95% CI 1.04–1.15). The results of the meta analysis supported the ACOG's guidelines for physical activity, particularly cardiovascular fitness, in childbirth.

In the study of Barakat R, et al (11) on A randomly controlled experiment of 320 normal pregnant women with singleton trimester found that activity when pregnant is not associated with in premature labor. Results showed that 290 women were analyzed that exercise performed showed no risk of premature birth for wellbeing pregnant women.

In Wang C, et al (12A controlled clinical study evaluating the benefits of exercise for childbearing ladies whom are bulky or fatty in preventing maternal diabetes mellitus & improving the pregnancy results. This study was conducted in 300 singleton ladies at 10 weeks of body mass index of 26.78 kg/m<sup>2</sup>. Results showed that women in exercise has notably lesser prevalence of maternal diabetes mellitus contrast to control gang. Babies born to women in workout gang had considerably lower birth weight contrast to infant of control gang.

In Di Mascio D et al (13)study on Risk of premature birth and fitness during pregnancy in women of typical size. A meta-synthesis and systematic review of trials that were randomized was used to carry out this investigation. This analysis was done in 2059 women were randomizely divided to exercise and control group. Intervention done by aerobic exercise lasted about 35-90mins per week. Results showed that ladies in workout

group had considerably greater frequency of vaginal birth (73.6% vs 67.5%) contrast to control club. ladies among workout gang have considerably reduced ferquency of maternal diabetes mellitus and hypertensive disorders. Zero differences in low birthweight and mean birth mass between the exercise & control group. In Magro-Malosso ER, Saccone et al study (14) on Risk of premature delivery and workout while getting pregnant people may seem overweight or obese. A comprehensive review and meta analysis of trials with unselected control served as the foundation for this investigation. The percentage of PTB <37 weeks was lower for fatty and obese women who were allocated to aerobic activity for 30 to 60 minutes 3 to 7 times a week during the initial period of maternity (RR 0.62, 95% CI 0.41-0.95). contrast to controls. Results claimed that women in exercise group had a lower incidence of gestational diabetes mellitus compared with control group. No differences in birth weight, still birth, low birth weight and macrosomia between the exercise and control group.

The impact of diet-based weight-management strategies on muscle-related outcomes in pregnant and after delivery ladies are examined in the Spencer L, Rollo M, et al. study (15). This study was based on a systematic review protocol.. results showed that diet improvement were notably efficient in reducing gestational weight gain.

In Rodríguez-Blanke R, Aguilar-Cordero MJ et al study (16) about Aquva activity and Quality of Life in maternity: it was based on a Unselected Clinical Trial conducted in 129 pregnant women were assigned to exercise which was began in 20 weeks to 37 weeks. Results showed that no considerably noted change between among and control gang for neonatal birth weight. The women in exercise group was significantly less among the exercise group only in emotional role, bodily pain.

In a cross-sectional study on psychological wellness and lack of exercise during pregnancy, Takahasi E.H., Alves M.T. et al. (17). 1447 pregnant women in their second trimester participated in this study. The findings indicated that there was no correlation between physical inactivity and felt distress or indications of major depression. Physical inactivity was associated with, surprisingly, normal decreased kinds of anxiety, not staying with a spouse (OR = 1.28), and working in an unskilled career (OR = 0.71).

In Mottola MF et al study (18)in No. 367-2019 Canadian Guideline for Physical Activity throughout Pregnancy. This study provided guidance of pregnant women, obstetrics care and exercise experts on prenatal activity. There are substantial advantages to physical activity during pregnancy, and no negative effects have been found.Mother, baby, or premature birth or infant mortality prior to and following pregnancy were results that were assessed. This guideline was developed in accordance with the Appraisal of Guidelines for Research Evaluation (AGREE) II tool.

In Barakat R et al randomized control study (19) on an exercise regimen during pregnancy. Is the mother and baby protected? And the study was conducted in 200 pregnant women of uncomplicated singleton gestation. They were divided into 2 groups of 107 in activity gang and 93 in control gang. The people in the group took part in a workout program. about 55-60mins of exercise for 3 days in a week. According to the results, contrast to the exercise category, a considerably higher percentage of pregnant women in the control group obtained too much weight over their pregnancies. Lastly, this research shows that a daily, gentle exercise regimen helps prevent unwanted weight gain..

In Bacchi M et al randomized clinical trial study(20). Aquatic Activities During Pregnancy Prevent Excessive Maternal Weight Gain and Preserve Birth Weight. 111 pregnant women were participated in this study. Exercise group done 3 weekly sessions of aerobic and resistance aquatic activities from 10- 12 weeks until 38-39 weeks of gestation. Results showed a greater proportion of women in the control category than in the exercise category experienced severe maternal weight gain.

#### ➤ **CONCLUSION AND LIMITATIONS:**

Simple regular walking during pregnancy yields best outcome in spontaneous onset of labour and duration of vaginal delivery. Walking during late pregnancy, improves pregnancy outcomes as reduces the period of first stage of labour and increases vaginal delivery. In this study, sample population is less. It can be increased in further studies.

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